

# NATIONAL INSTITUTE OF TECHNOLOGY: TIRUCHIRAPPALLI – 620 015

## DEPARTMENT OF MECHANICAL ENGINEERING

### Development of Reusable / Washable Face shields

The department of Mechanical Engineering, NITT is interested to assist in the development of Reusable / Washable face shields that give more protection to the front line workers. The department has installed with a 3D Printing facility (MakerBot Replicator+) which is capable of printing PLA based 3D masks frames / structures. The .stl files of the Face shield and strap-lock were downloaded from <https://aicraise.com/> and the samples were printed as shown in Fig 1. The assembled view of the Face Mask is given in Figure 2.



Figure 1 3D Printed Face mask frame and Strap Lock



Figure 2 Face mask Assembled

The weight of the face mask along with the strap-lock is computed as 50 grams and took 2 Hrs for printing a single piece.

**(a) Materials Required for 50 Nos.**

Sl. No.	Material	Quantity
1	PLA Filament	3 kg
2	Foam Tape 3/4in wide x 1/2in thick - cut to 9.5in long	3 rolls
3	Poly sheet (12 in x 9 in)	At least 50
4	Elastic Band - 1/2in wide - cut to 31in long	50/ 2 Rolls
5	Super Glue	5
6	Rubbing Alcohol and other disinfectants Polybags	--

Materials available with the department: - NIL -

**(b) Tools Available**

1. 3d Printer (MakerBot Replicator+)
2. Scissors
3. Vinyl Gloves
4. 0.25 in punch

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